

CLAIMS

1. (Amended) A discharging surface treatment method for generating a discharge between an electrode and a treatment target so that a hard coat film is formed on the surface of the treatment target by the discharging energy,

wherein a powder that is formed by a simple substance or a combination of a plurality of carbides of metals belonging to the IVa, Va and VIa families in the Periodic Table is mixed with a ferrous-family metal powder or non-ferrous metal powder having the same composition as the treatment target as a simple substance or a combination of a plurality of metals, and this is compressed and molded, and then burned at a temperature at which the ferrous-family or non-ferrous metal powder starts to elute to form an electrode serving as a discharge processing electrode, and

electrical conditions at the time when the base member of the treatment target is directly subjected to a discharging surface treatment and the electrical conditions at the time when a hard coat film that has been formed is subjected to a discharging surface treatment are altered according to the characteristics of the treatment target material.

2. (Amended) A discharging surface treatment method for generating a discharge between an electrode and a treatment target so that a hard coat film is formed on the surface

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of the treatment target by the discharging energy,

wherein a powder that is formed by a simple substance
or a combination of a plurality of carbides of metals belonging
to the IVa, Va and VIa families in the Periodic Table is
5 mixed with a ferrous-family metal powder or non-ferrous metal
powder having the same composition as the treatment target
as a simple substance or a combination of a plurality of
metals, and this is compressed and molded, and then burned
10 at a temperature at which the ferrous-family or non-ferrous
metal powder starts to elute to form an electrode serving
as a discharge processing electrode, and

electrical conditions at the time when a hard coat film
that has been formed is subjected to a discharging surface
treatment are altered at least once according to the
15 characteristics of the treatment target material.

3. (Amended) A discharging surface treatment method for
generating a discharge between an electrode and a treatment
target so that a hard coat film is formed on the surface
20 of the treatment target by the discharging energy,

wherein a powder that is formed by a simple substance
or a combination of a plurality of carbides of metals belonging
to the IVa, Va and VIa families in the Periodic Table is
mixed with a ferrous-family metal powder or non-ferrous metal
25 powder having the same composition as the treatment target

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as a simple substance or a combination of a plurality of metals, and this is compressed and molded, and then burned at a temperature at which the ferrous-family or non-ferrous metal powder starts to elute to form an electrode serving
5 as a discharge processing electrode, and

electrical conditions at the time when the base member of the treatment target is directly subjected to a discharging surface treatment and the electrical conditions at the time when a hard coat film that has been formed is subjected to
10 a discharging surface treatment are altered according to the characteristics of the treatment target material, while the electrical conditions at the time when the hard coat film that has been formed is subjected to a discharging surface treatment are altered at least once according to the
15 characteristics of the treatment target material.

4. (Amended) The discharging surface treatment method according to claim 1, wherein an inert gas is interpolated between the discharge processing electrode and the treatment
20 target.

5. (Amended) The discharging surface treatment method according to claim 2, wherein an inert gas is interpolated between the discharge processing electrode and the treatment
25 target.

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6. (Amended) The discharging surface treatment method according to claim 3, wherein an inert gas is interpolated between the discharge processing electrode and the treatment
5 target.

7. (Amended) The discharging surface treatment method according to claim 1, wherein the discharge processing electrode is allowed to scan the treatment target so that
10 the hard coat film is formed on the surface of the treatment target.

8. (Amended) The discharging surface treatment method according to claim 2, wherein the discharge processing
15 electrode is allowed to scan the treatment target so that the hard coat film is formed on the surface of the treatment target.

9. (Amended) The discharging surface treatment method
20 according to claim 3, wherein the discharge processing electrode is allowed to scan the treatment target so that the hard coat film is formed on the surface of the treatment target.

25 10. (Amended) A discharging surface treatment device for

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generating a discharge between an electrode and a treatment target so that a hard coat film is formed on the surface of the treatment target by the discharging energy,

wherein a powder that is formed by a simple substance
5 or a combination of a plurality of carbides of metals belonging to the IVa, Va and VIa families in the Periodic Table is mixed with a ferrous-family metal powder or non-ferrous metal powder having the same composition as the treatment target as a simple substance or a combination of a plurality of
10 metals, and this is compressed and molded, and then burned at a temperature at which the ferrous-family or non-ferrous metal powder starts to elute to form an electrode serving as a discharge processing electrode, and

said discharging surface treatment device is provided
15 with a switching unit which alters the electrical conditions at the time when the base member of the treatment target is directly subjected to a discharging surface treatment and the electrical conditions at the time when a hard coat film that has been formed is subjected to a discharging surface
20 treatment according to the characteristics of the treatment target material.

11. (Amended) A discharging surface treatment device for
generating a discharge between an electrode and a treatment
25 target so that a hard coat film is formed on the surface

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of the treatment target by the discharging energy,

wherein a powder that is formed by a simple substance
or a combination of a plurality of carbides of metals belonging
to the IVa, Va and VIa families in the Periodic Table is
5 mixed with a ferrous-family metal powder or non-ferrous metal
powder having the same composition as the treatment target
as a simple substance or a combination of a plurality of
metals, and this is compressed and molded, and then burned
at a temperature at which the ferrous-family or non-ferrous
10 metal powder starts to elute to form an electrode serving
as a discharge processing electrode, and

said discharging surface treatment device is provided
with a switching unit which alters the electrical conditions
at the time when a hard coat film that has been formed is
15 subjected to a discharging surface treatment at least once
according to the characteristics of the treatment target
material.

12. (Amended) A discharging surface treatment device for
20 generating a discharge between an electrode and a treatment
target so that a hard coat film is formed on the surface
of the treatment target by the discharging energy,

wherein a powder that is formed by a simple substance
or a combination of a plurality of carbides of metals belonging
25 to the IVa, Va and VIa families in the Periodic Table is

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mixed with a ferrous-family metal powder or non-ferrous metal powder having the same composition as the treatment target as a simple substance or a combination of a plurality of metals, and this is compressed and molded, and then burned
5 at a temperature at which the ferrous-family or non-ferrous metal powder starts to elute to form an electrode serving as a discharge processing electrode, and

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said discharging surface treatment device is provided with a first switching unit which alters the electrical
10 conditions at the time when the base member of the treatment target is directly subjected to a discharging surface treatment and the electrical conditions at the time when a hard coat film that has been formed is subjected to a discharging surface treatment according to the
15 characteristics of the treatment target material, and a second switching unit which alters the electrical conditions at the time when the hard coat film that has been formed is subjected to a discharging surface treatment at least once according to the characteristics of the treatment target
20 material.

13. (Amended) The discharging surface treatment device according to claim 10, wherein an inert-gas supplying unit is installed so as to interpolate an inert gas between the
25 discharge processing electrode and the treatment target.

14. (Amended) The discharging surface treatment device according to claim 11, wherein an inert-gas supplying unit is installed so as to interpolate an inert gas between the discharge processing electrode and the treatment target.

15. (Amended) The discharging surface treatment device according to claim 12, wherein an inert-gas supplying unit is installed so as to interpolate an inert gas between the discharge processing electrode and the treatment target.

16. (Amended) The discharging surface treatment device according to claim 10, wherein an X-axis driving device, a Y-axis driving device and a Z-axis driving device, which relatively shift the discharge processing electrode and the treatment target in the X-direction, Y-direction and Z-direction, are installed so that the X-axis driving device, the Y-axis driving device and the Z-axis driving device allow the discharge processing electrode to scan the treatment target to form the hard coat film on the surface of the treatment target.

17. (Amended) The discharging surface treatment device according to claim 11, wherein an X-axis driving device, a Y-axis driving device and a Z-axis driving device, which

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relatively shift the discharge processing electrode and the treatment target in the X-direction, Y-direction and Z-direction, are installed so that the X-axis driving device, the Y-axis driving device and the Z-axis driving device allow
5 the discharge processing electrode to scan the treatment target to form the hard coat film on the surface of the treatment target.

18. (Amended) The discharging surface treatment device
10 according to claim 12, wherein an X-axis driving device, a Y-axis driving device and a Z-axis driving device, which relatively shift the discharge processing electrode and the treatment target in the X-direction, Y-direction and Z-direction, are installed so that the X-axis driving device, the Y-axis driving device and the Z-axis driving device allow
15 the discharge processing electrode to scan the treatment target to form the hard coat film on the surface of the treatment target.

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